

## CLAIMS:

1. A nucleic acid molecule comprising a nucleotide sequence encoding a polypeptide having one or more of the identifying characteristics of Bim or a derivative or homologue thereof.
2. A nucleic acid molecule according to claim 1 wherein said nucleic acid molecule comprises a nucleotide sequence encoding or complementary to a sequence encoding an amino acid sequence substantially as set forth in one of SEQ ID NO:2, 4 or 6 or a derivative or homologue thereof or having at least about 45% or greater similarity to one or more of SEQ ID NO:2, 4 or 6 or derivative or homologue thereof.
3. A nucleic acid molecule according to claim 1 comprising a nucleotide sequence substantially as set forth in one of SEQ ID NO:1, 3 or 5 or a derivative or homologue thereof capable of hybridising to one of SEQ ID NO:1, 3 or 5 under low stringency conditions at 42°C.
4. A nucleic acid molecule according to claim 3 which further encodes an amino acid sequence corresponding to an amino acid sequence set forth in one of SEQ ID NO:2, 4 or 6 or a derivative or homologue thereof or having at least about 45% or greater similarity to one or more of SEQ ID NO:2, 4 or 6 or derivative or homologue thereof.
5. A nucleic acid molecule according to claim 3 or 4 substantially as set forth in one of SEQ ID NO:1, 3 or 5.
6. A nucleic acid molecule according to claim 1 wherein said nucleic acid molecule comprises a nucleotide sequence encoding or complementary to a sequence encoding an amino acid sequence substantially as set forth in one of SEQ ID

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NO:8 or 10 or a derivative or homologue thereof or having at least about 45% or greater similarity to one or more of SEQ ID NO:8 or 10 or derivative or homologue thereof.

7. A nucleic acid molecule according to claim 1 comprising a nucleotide sequence substantially as set forth in SEQ ID NO:7 or 9 or a derivative or homologue thereof capable of hybridising to one of SEQ ID NO:7 or 9 under low stringency conditions at 42°C.
8. A nucleic acid molecule according to claim 7 which further encodes an amino acid sequence corresponding to an amino acid sequence substantially as set forth in one of SEQ ID NO:8 or 10 or a derivative or homologue thereof or having at least about 45% or greater similarity to one or more of SEQ ID NO:8 or 10 or a derivative or homologue thereof.
9. A nucleic acid molecule according to claim 7 or 8 substantially as set forth in one of SEQ ID NO:7 or 9.
10. A polypeptide comprising the amino acid sequence of Bim or having one or more of the identifying characteristics thereof or derivative or homologue thereof.
11. A polypeptide according to claim 10 comprising an amino acid sequence substantially as set forth in SEQ ID NO:2, 4 or 6 or derivative or homologue thereof or a sequence having at least about 45% similarity to one or more of SEQ ID NO:2, 4 or 6.
12. A polypeptide according to claim 10 encoded by a nucleotide sequence substantially as set forth in SEQ ID NO:1, 3 or 5 or a derivative or homologue thereof under low stringency conditions at 42°C.

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13. A polypeptide according to claim 12 further comprising an amino acid sequence substantially as set forth in SEQ ID NO:2, 4 or 6 or derivative or homologue thereof or a sequence having at least about 45% similarity to one or more of SEQ ID NO:2, 4 or 6.

14. A polypeptide according to claim 12 ~~or 13~~ substantially as set forth in SEQ ID NO:2, 4 or 6.

15. A polypeptide according to claim 10 comprising an amino acid sequence substantially as set forth in SEQ ID NO:8 or 10 or derivative or homologue thereof or a sequence having at least about 45% similarity to one or more of SEQ ID NO:8 or 10.

16. A polypeptide according to claim 10 encoded by a nucleotide sequence substantially as set forth in SEQ ID NO:7 or 9 or a derivative or homologue thereof under low stringency conditions at 42°C.

17. A polypeptide according to claim 16 further comprising an amino acid sequence substantially as set forth in SEQ ID NO:8 or 10 or derivative or homologue thereof or a sequence having at least about 45% similarity to one or more of SEQ ID NO:8 or 10.

18. A polypeptide according to claim 16 ~~or 17~~ substantially as set forth in SEQ ID NO:8 or 10.

19. A polypeptide according to ~~any one of claims 10 to 18~~ <sup>claim 10</sup> in homodimeric form.

20. A polypeptide according to ~~any one of claims 10 to 18~~ <sup>claim 10</sup> in heterodimeric form.

21. A variant of an isolated *Bim* nucleic acid molecule as claimed in ~~any one of~~ <sup>Claim 1</sup>

a claims 1-9 comprising one or more nucleotide mutations in said nucleic acid molecule resulting in at least one amino acid addition, substitution and/or deletion to the polypeptide encoded by said variant wherein said polypeptide cannot bind, couple or otherwise associate with a dynein light chain.

b 22. A variant according to claim 21 wherein said mutation results in an amino acid addition, substitution and/or deletion in the region of the polypeptide chain which binds the dynein light chain.

23. A variant according to claim 22 wherein said *Bim* is murine or human *Bim<sub>L</sub>* and said region is defined by amino acid residue numbers 42 to 71.

24. A variant according to claim 23 wherein said mutation is a substitution of one or more of D51, S53, T54 and/or N65.

25. A variant according to claim 24 wherein said substitution is one or more of D51G, S53P, T54A, T52I and/or N65S.

26. A variant according to claim 25 wherein said substitution is D51G or S53P or T54A or T54I and N65S.

27. A variant according to claim 22 wherein said *Bim* is murine *Bim<sub>EL</sub>* and said region is defined by amino acid residue numbers 42 to 127.

28. A variant according to claim 22 wherein said *Bim* is human *Bim<sub>EL</sub>* and said region is defined by amino acid residue numbers 42 to 131.

a b d 29. A variant of an isolated *Bim* polypeptide as claimed in any one of claims 10-20 comprising at least one amino acid addition, substitution and/or deletion wherein said variant cannot bind, couple or otherwise associate with the dynein light

Claim 10

*Ab  
Dy  
chain.*

30. A variant according to claim 29 wherein said amino acid addition, substitution and/or deletion occurs in the region of the polypeptide chain which binds the dynein light chain.
31. A variant according to claim 30 wherein said Bim is murine or human Bim<sub>L</sub> and said region is defined by amino acid residue numbers 42 to 71.
32. A variant according to claim 31 wherein said mutation is a substitution of one or more of D51, S53, T54 or N65.
33. A variant according to claim 32 wherein said substitution is one or more of D51G, S53P, T54A, T54I and/or N65S.
34. A variant according to claim 33 wherein said substitution is D51G or S53P or T54A or T54I and N65S.
35. A variant according to claim 30 wherein said Bim is murine Bim<sub>EL</sub> and said region is defined by amino acid residue numbers 42 to 127.
36. A variant according to claim 30 wherein said Bim is human Bim<sub>EL</sub> and said region is defined by amino acid residue numbers 42 to 131.
37. A method of modulating activity of Bim in a mammal said method comprising administering to said mammal a modulating effective amount of an agent for a time and under conditions sufficient to increase, decrease or otherwise modulate Bim activity.
38. A method of modulating expression of *Bim* in a mammal, said method comprising

administering to said mammal a modulating effective amount of an agent for a time and under conditions sufficient to up-regulate, down-regulate, or otherwise modulate expression of *Bim*.

39. A method of modulating apoptosis in mammal said method comprising administering to said mammal an effective amount of an agent for a time and under conditions sufficient to modulate the expression of a nucleotide sequence encoding *Bim*.
40. A method of modulating apoptosis in a mammal said method comprising administering to said mammal an effective amount of an agent for a time and under conditions sufficient to modulate the activity of *Bim*.
41. A method of modulating apoptosis in a mammal said method comprising administering to said mammal an effective amount of *Bim* or *Bim* or derivative thereof.
42. A method of treating a mammal said method comprising to said mammal an effective amount of an agent for a time and under conditions sufficient to modulate the expression of *Bim* wherein said modulation results in modulation of apoptosis.
43. A method of treating a mammal said method comprising administering to said mammal an effective amount of an agent for a time and under conditions sufficient to modulate the activity of *Bim* wherein said modulation results in modulation of apoptosis.
44. A method of treating a mammal said method comprising administering to said mammal an effective amount of *Bim* or *Bim* or derivative thereof for a time and under conditions sufficient to modulate apoptosis.

45. Use of an agent capable of modulating the expression of *Bim* in the manufacture of a medicament for the modulation of apoptosis.
46. Use of an agent capable of modulating the expression of *Bim* in the manufacture of a medicament for the modulation of apoptosis.
47. Use of *Bim* or *Bim* or derivative thereof in the manufacture of a medicament for the modulation of apoptosis.
48. An agent for use in modulating *Bim* expression wherein modulating expression of said *Bim* modulates apoptosis.
49. An agent for use in modulating *Bim* expression wherein modulating expression of said *Bim* modulates apoptosis.
50. Composition comprising *Bim* or *Bim* or derivative thereof for use in modulating apoptosis.
51. A pharmaceutical composition comprising *Bim*, *Bim* or derivative thereof or an agent capable of modulating *Bim* expression or *Bim* activity together with one or more pharmaceutically acceptable carriers and/or diluents.
52. An immunointeractive molecule comprising an antigen binding portion having specificity for *Bim* or *Bim* or derivative thereof.
53. The immunointeractive molecule according to claim 52 wherein said immunointeractive molecule is a monoclonal antibody.
54. A monoclonal antibody according to claim 53 wherein said specificity is specificity for *Bim<sub>L</sub>*.

55. A method of detecting an immunointeractive molecule, in a sample, specific for a protein of interest produced by a cell said method comprising contacting the sample to be tested with a population of cells comprising a defined ratio of cells producing the protein of interest and cells not producing the protein of interest for a time and under conditions sufficient for the immunointeractive molecule if present in said sample to interact with said protein of interest and then subjecting said immunointeractive molecule-protein complex to detecting means.
56. A method according to claim 55 wherein said immunoreactive molecule is an antibody.
57. A method according to claim 55 or 56 wherein the detecting means comprises an anti-immunoglobulin antibody labelled with a reporter molecule capable of giving a detectable signal.
58. A method according to claim 55, 56 or 57 wherein the population of cells is subjected to flow cytometric analysis to produce a fluorescent signal wherein a differential fluorescent signal is indicative of antibody binding to said target protein.
59. The method for detecting *Bim* or Bim in a biological sample from a subject said method comprising contacting said biological sample with an immunointeractive molecule as hereinbefore defined specific for *Bim*, Bim or its derivatives thereof for a time and under conditions sufficient for an immunoreactive molecule-*Bim* or immunoreactive molecule-Bim complex to form, and then detecting said complex.
60. A peptide comprising at least 4 contiguous amino acids corresponding to at least 4 contiguous amino acids in SEQ ID NOS: 2, 4, 5, 8 or 10 or derivative or homologue thereof.

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61. A nucleic acid molecule encoding a peptide according to claim 60.